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METHODS OF DETERMINATION OF ASH AND SULPHATED ASH

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MAKG
NEW DELHI 110002

July 1978

AMENDMENT NO. 1 JULY 1980

TO

IS:8769-1978 METHODS OF DETERMINATION OF ASH AND SULPHATED ASH

Corrigendum

(*Page* 4, *clause* 5.2, *line* 7) - Substitute '775 ± 25°C' *for* '775 ± 35°C'.

(CDC 1)

Reprography Unit, ISI, New Delhi

Indian Standard

METHODS OF DETERMINATION OF ASH AND SULPHATED ASH

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(*Continued on page* 2)

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Indian Standard

METHODS OF DETERMINATION OF ASH AND SULPHATED ASH

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 25 April 1978, after the draft finalized by the Chemical Standards Sectional Committee had been approved by the Chemical Division Council.

0.2 This standard is intended to achieve uniformity and avoid unnecessary variations in the details of the methods given in different Indian Standards dealing with analysis of chemical products.

0.3 In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard prescribes the methods for the determination of ash and sulphated ash.

1.1.1 The method outlined does not take into account any specific requirement in selected cases. Additional instructions in this respect are covered in the relevant Indian Standards.

2. QUALITY OF REAGENTS

2.1 Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1977†) shall be employed in tests.

NOTE— 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

3. APPARATUS

3.1 Platinum, Porcelain or Silica Dish

3.2 Furnace — Capable of maintaining the temperature up to 800°C.

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*Rules for rounding off numerical values (*revised*).

†Specification for water for general laboratory use (*second revision*).

4. REAGENT

4.1 Concentrated Sulphuric Acid — *See* IS : 266-1961*.

5. PROCEDURE

5.1 Ash — Weigh accurately the quantity of the material specified in the relevant material specification in a tared platinum, porcelain or silica dish. Slowly burn the material and finally ignite it in a furnace at 775 ± 25°C until all carbonaceous matter has disappeared. Cool in a desiccator and weigh. Repeat the operation till constant mass is obtained.

5.1.1 *Calculation*

$$\text{Ash, percent by mass} = \frac{M_1 - M_2}{M} \times 100$$

where

M_1 = mass in g of the ignited residue with the crucible,

M_2 = mass in g of the crucible, and

M = mass in g of the material taken for the test.

5.2 Sulphated Ash — Weigh accurately the quantity of the material specified in the relevant material specification in a tared platinum, silica or porcelain dish previously heated and weighed. Burn carefully until thoroughly charred, cool, moisten the residue with 1 ml of concentrated sulphuric acid and then cautiously ignite until all carbonaceous matter has disappeared and then heat strongly till no fumes are evolved. Finally ignite in a furnace at 775 ± 35°C. Cool in a desiccator and weigh. Repeat the operation of heating and cooling till constant mass is obtained.

NOTE — In case of incomplete ashing, some carbonaceous matter persists after ashing; treatment with 1 or 2 drops of nitric acid may precede treatment with sulphuric acid.

5.2.1 *Calculation*

$$\text{Sulphated ash, percent by mass} = \frac{M_1 - M_2}{M} \times 100$$

where

M_1 = mass in g of the ignited residue with the crucible,

M_2 = mass in g of the crucible, and

M = mass in g of the material taken for the test.

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*Specification for sulphuric acid (*revised*).

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ON

GENERAL METHODS OF CHEMICAL ANALYSIS

IS:	
2088-1971	Methods for determination of arsenic (*first revision*)
2263-1962	Methods of preparation of indicator solutions for volumetric analysis
2310-1968	Methods of preparation of standard solutions for colorimetric and volumetric analysis (*first revision*)
2317-1975	Method for gravimetric determination of sulphates (*first revision*)
2362-1973	Determination of water by Karl Fischer method (*first revision*)
3225-1965	Methods for preparation of buffer solutions
4016-1966	Density-composition tables for aqueous solutions of sodium hydroxide
4048-1966	Density-composition tables for aqueous solutions of sulphuric acid
4284-1967	Method for volumetric determination of iron
4285-1967	Method for volumetric determination of calcium
4542-1968	Colorimetric methods for determination of iron
4730-1968	Method for determination of density of liquids
5194-1969	Method for determination of nitrogen — Kjeldahl method
5298-1969	Method for determination of distillation range and distillation yield
5305-1969	Method for volumetric determination of phosphorus
5741-1970	Methods for determination of *p*H
5762-1970	Methods for determination of melting point and melting range
5813-1970	Methods for determination of crystallizing point
5949-1970	Methods for volumetric determination of calcium and magnesium using EDTA
6361-1971	Methods for colorimetric determination of phosphorus
7017-1973	Method for colorimetric determination of traces of heavy metals by dithizone
7212-1974	Methods of determination of copper

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